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**( Reaffirmed 1996 )**

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# *Indian Standard*
# SPECIFICATION FOR KEROSINE
## *( Second Revision )*

Sixth Reprint SEPTEMBER 2001

( Incorporating Amendment No. 1 )

UDC 662.753.22

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**BUREAU OF INDIAN STANDARDS**
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
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**Gr 2**

*September* 1974

# AMENDMENT NO. 2 NOVEMBER 1984

# TO

# IS:1459-1974 SPECIFICATION FOR KEROSINE

## *(Second Revision)*

### Alteration

[*Page 4, Table 1, foot-note with '‡' mark (see also* Amendment No. 1)] - Substitute the following for the existing matter:

'‡For supplies to Defence and Railways signal lamps, the smoke point of the products shall be 22 mm, *Min*.'

(PCDC 3)

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Printed at New India Printing Press, Khurja, India

# AMENDMENT NO. 3 SEPTEMBER 1993
# TO
# IS 1459 : 1974 SPECIFICATION FOR KEROSINE

*( Second Revision )*

( *Page* 3, *clause* **0.2** ) — Add the following after **0.2**:

'In accordance with the decision taken by the Government of India that kerosine to be supplied through Public Distribution System ( PDS ) would be coloured blue, requirements for suitable blue dye, its concentration range and its colour requirements in case of coloured kerosine have also been included.'

( *Page* 3, *clause* **2.1** ) — Substitute the following for the existing:

'**2.1** The material shall consist of refined petroleum distillates. It shall be free from visible water, sediment and suspended matter. A suitable blue dye of appropriate concentration may also be added wherever required.'

**2.1.1** *Dye* — A suitable blue dye of alkylamino anthraquinone type shall be added to kerosene required to be dyed for the purpose of easy product identification. Such dye shall be added in the concentration range of 4 to 6 ppm of active ingredient (*see* Annex A for the test method) to the kerosene and the dyed kerosene shall also comply with the requirements given in **2.2**.'

[ *Page* 4, *Table* 1, *Sl No.* (iii)] — Read the following for the existing:

| | | |
|---|---|---|
| 'Colour | | |
| a) Saybolt, *Min* (in case of undyed kerosene) | 10 | P:14 |
| b) Visual (in case of dyed kerosene ) | Blue | |

[ *Page* 5, *clause* **3.2.2** (a)] — Read the following for the existing:

a) Name and colour of the material.

( *Page* 6 ) — Add Annex A at the end of the text:

# ANNEX A

( *Clause* 2.1.1 )

## MEASUREMENT OF CONCENTRATION OF DIALKYL AMINO-ANTHRAQUINON DYE IN KEROSENE BY UV SPECTROSCOPY

### A-1 GENERAL

This method is for the determination of concentration of dialkyl-aminoanthraquinone type dye in the kerosene.

### A-2 OUTLINE OF THE METHOD

The ultraviolet absorption spectrum of the kerosene sample having dialkyl amino-anthraquinone type dye in the range of 1 to 20 ppm is recorded and a baseline correction technique is used to compensate for background absorption of the sample. The maximum value of absorption obtained in the 645 to 655 nm range is fitted in a standard curve of concentration of dialkyl amino-anthraquinone dye versus absorption and to find out the concentration of dye in a sample under test.

### A-3 APPARATUS

A-3.1 Ultraviolet spectrophotometer, capable of operation in the range of 200 to 800 nm with a spectral slit width of 1nm and capable of 0.01 percent precision in absorbance measurement at the 1.0 level at this resolution.

A-3.2 Absorption cells, quartz, 10 mm path length, PTFE cover.

A-3.3 Millipore microfiltration assembly.

A-3.4 PTFE filters of 0.8 µm size.

### A-4 SAMPLING

About 100 ml sample is filtered through PTFE (0.8 µm ) membrane to make the sample free from any insoluble particles.

### A-5 PROCEDURE

Wash the absorption cells properly and dry them. Fill one 10 mm absorption cell with the filtered dyed sample. Fill an identical 10 mm absorption cell with sample without dye to be used as a reference. Measure the absorbances at 645 to

655 nm range. Make successive dilutions with kerosene without dye, as required, if the absorbance is greater than 1.0 at 645 to 655 nm range. Determine the maximum absorption value of the single peak in this region. Fit the absorption value in the standard curve of absorption versus concentration of dye (*see* Fig.1) and find out the concentration of dye in the unknown sample.'

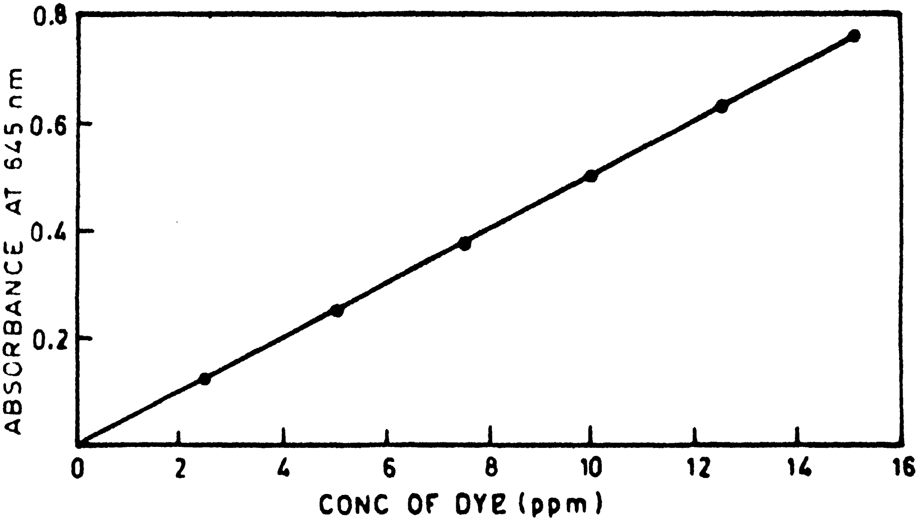

Fig. 1 Standard Curve of Absorbance vs Conc of Dye

(PCD 3)

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# *Indian Standard*
# SPECIFICATION FOR KEROSINE
## *( Second Revision )*

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( *Continued on page* 6 )

# *Indian Standard*
# SPECIFICATION FOR KEROSINE
## *( Second Revision )*

## 0. FOREWORD

**0.1** This Indian Standard ( Second Revision ) was adopted by the Indian Standards Institution on 22 February 1974, after the draft finalized by the Petroleum Products Sectional Committee had been approved by the Chemical Division Council.

**0.2** This specification was originally issued in 1959 and subsequently revised in 1968. It was amended in 1972 in order to modify the requirements of IK grade kerosine. The present second revision has been prepared as a result of a review of the standard in the light of the present day requirements of kerosine in the country. The 1968 version of the specification covered two grades of kerosines, namely, SK grade and IK grade, but since the production of IK grade kerosine in the country has been discontinued, it was felt necessary to delete this grade from the specification and retain only SK grade. In this revision the colour requirements of SK grade kerosine has also been reduced from +21 Saybolt to +10 Saybolt.

**0.3** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

## 1. SCOPE

**1.1** This standard prescribes requirements and methods of sampling and test for kerosine intended for use as an illuminant and as a fuel.

## 2. REQUIREMETNS

**2.1** The material shall consist of refined petroleum distillates. It shall be free from visible water, sediment and suspended matter.

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*Rules for rounding off numerical values ( *revised* ).

**2.2** The material shall also comply with the requirements given in Table 1, when tested according to the appropriate methods prescribed under 'P' series of IS : 1448*, reference to which is given in col 4 of the table.

### TABLE 1 REQUIREMENTS FOR KEROSINE

| Sl No. | Characteristic | Requirement | Method of Test, Ref to 'P' of IS : 1448* |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| i ) | Acidity, inorganic | Nil | P : 2 |
| ii ) | Burning quality: | | P : 5 |
| | a ) Char value, mg/kg of oil consumed, *Max* | 20 | |
| | b ) Bloom on glass chimney | Not darker than grey | |
| iii ) | Colour ( Saybolt )†, *Min* | †10 | P : 14 |
| iv ) | Copper strip corrosion for 3 h at 50°C | Not worse than No. 1 | P : 15 |
| v ) | Distillation: | | P : 18 |
| | a ) Percent recovered below 200°C, *Min* | 20 | |
| | b ) Final boiling point, °C, *Max* | 300 | |
| vi ) | Flash point ( Abel ), °C, *Min* | 35 | P : 20 |
| vii ) | Smoke point, mm, *Min* | 18‡ | P : 31 |
| viii ) | Total, sulphur, percent by mass, *Max* | 0·25§ | P : 34 |

*Methods of test for petroleum and its products.

†Where Saybolt chromometer is not available, Lovibond colour of the sample kept in an 18-in cell may be measured according to IS : 1448 [ P : 13 ]-1960 ' Methods of test for petroleum and its products, P : 13 Colour by Lovibond tintometer ' in which case, the colour shall not be deeper than Standard White ( IP 4·0 ).

‡For supplies to Defence, the smoke point of the product shall be 21 mm, *Min* and for Railways it shall be 20 mm, *Min*.

§For supplies to Defence, total sulphur content, percent by mass, of the product shall be 0·20, *Max*.

---

*Methods of test for petroleum and its products.

## 3. PACKING AND MARKING

**3.1 Packing** — The material shall be packed in suitable tinplate containers ( *see* IS : 916-1966* ), or as agreed to between the purchaser and the supplier and subject to the provisions of Red Tariff No. 17, Rules and Rates for the Conveyance by Rail of Explosives and Other Dangerous Goods, issued by the Indian Railway Conference Association, with any alterations or additions made thereafter.

### 3.2 Marking

**3.2.1** The material shall be supplied in accordance with the marking and delivery instructions given by the purchaser.

**3.2.2** Each container shall be marked with the following information:

a) Name of the material;
b) Manufacturer's name, initials, or trade-mark, if any;
c) Volume of the contents in litres;
d) Year of packing; and
e) The caution label ' FLAMMABLE ' together with the corresponding symbol for labelling dangerous goods as given in Fig. 5 of IS : 1260 ( Part I )-1973†.

### 3.3 BIS Certification Marking

The product may also be marked with Standard Mark.

**3.3.1** The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

## 4. SAMPLING

**4.1** Representative samples of the material shall be drawn as prescribed in IS : 1447-1966‡.

**4.2** Test on flash point and smoke point shall be conducted on individual samples and the rest on the composite samples.

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*Specification for 18-litre square tins ( *revised* ).

†Pictorial markings for handling and labelling of goods: Part I Dangerous goods ( *first revision* ).

‡Methods of sampling of petroleum and its products.

( *Continued from page* 2 )

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